AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF THE CLAIMS

1.   (currently amended)   In a network comprised of a plurality of interconnected process management modules respectively associated with processes for operation of a fossil fuel power plant, a method for assigning ~~credit~~a profit contribution value to a first input of a first process for operation of the fossil fuel power plant, the profit contribution value indicative of~~credit measuring~~ a contribution of the first input to a global output of the network, wherein the global output is a profit generated by operation of the fossil fuel power plant, the first process having a plurality of inputs and outputs, at least one of said outputs of the first process being a chained output that is an input to a second process for operation of the fossil fuel power plant and contributes to the global output of the network, the method comprising:

obtaining ~~credit assignments for~~profit contribution values for assignment to each of the chained outputs of the first process for operation of the fossil fuel power plant with respect to the global output, wherein the profit contribution values~~credit~~ assigned to each of the chained outputs of the first process are a measure of the contribution of the chained outputs~~output~~ on the global output;

using a model-based controller having a first-order differentiable model of the first process to derive a local contribution value for assignment to~~credit assignment for~~ the first input of the first process, wherein the local contribution value~~credit~~ assigned to the first input is a measure of the contribution of the first input on outputs of the first process; and

using a local processor to apply a chain rule for ordered partial derivatives using (a) the first-order differentiable model of the first process, (b) the local contribution value assigned to~~credit assignment for~~ the first input, and (c) the profit contribution values assigned to~~credit assignments for~~ the chained outputs of the first process, in order to assign the profit contribution value~~the credit~~ to the first input of the first process.

2.   (original)   The method of claim 1, wherein the first-order differentiable model is a neural network.

3.   (original)   The method of claim 1, wherein the first-order differentiable model is a first-principles model.

4.   (currently amended)   The method of claim 1, wherein the method includes managing the first process using a first process management module and determining the profit contribution value assigned to~~credit assignment of~~ the first input using the first process management module.

5.   (currently amended)   The method of claim 1, further comprising:

managing the first process using a first process management module;

transmitting the local contribution value~~credit assignment~~ over the network, from the first process management module, to a second process management module, wherein the second process management module computes the profit contribution value assigned to~~credit assignment for~~ the first input.

Claims 6-17   (canceled)

18.   (currently amended) A computer program product stored on a computer readable medium for use in analyzing a first process for operation of a fossil fuel power plant, the first process having a plurality of inputs and at least one output, at least one of said outputs being a chained output that is an input to a second process in a network of process management modules respectively associated with processes for operation of the fossil fuel power plant, and contributes to a global output of the network, wherein the global output is a profit generated by operation of the fossil fuel power plant, the computer program product containing instructions for causing a computer to:

obtain profit contribution values for assignment to~~credit assignments for~~ each of the chained outputs of the first process for operation of the fossil fuel power plant with respect to the global output using an application program interface, wherein the profit

contribution value~~scredit~~ assigned to each of the chained outputs of the first process are a measure of the contribution of the chained outputs on the global output;

obtain a first-order-differentiable model of the first process; and

apply a chain rule for ordered partial derivatives to the first-order-differentiable model using the <u>profit contribution values assigned to each of</u>~~credit assignments for~~ the chained outputs of the first process to determine a <u>profit contribution value assigned to</u> a~~credit of the~~ first input of the first process with respect to the global output of the network, wherein the ~~credit of~~<u>profit contribution value assigned to</u> the first input is a measure of the contribution of the first input on the global output.

19.   (original)   The computer program product of claim 18, wherein the first-order-differentiable model is a neural network.

20.   (original)   The computer program product of claim 18, wherein the first-order-differentiable model is a first-principles model.

Claim 21   (canceled)

22.   (currently amended)   The computer program product of claim 18, wherein the first-order-differentiable model is changed due to (a) a change in operating region of the first process, (b) <u>retraining</u>~~retaining~~ of the model, or (c) a physical change in the first process.

Claim 23   (canceled)

24.   (previously presented)   The method of claim 1, wherein said first and second processes for operation of the fossil fuel power plant are selected from the group consisting of the following processes: combustion optimization, sootblowing optimization, boiler performance optimization, selective catalytic reduction (SCR) optimization, flue gas desulfurization (FGD) optimization, and profit optimization.

25.   (previously presented)   The method of claim 1, wherein the first process is combustion optimization, said first input of the first process is selected from the group consisting of: O_2 trim, over fire air (OFA), mill biases, SAD, and cleanliness; and an output of the first process is selected from the group consisting of: boiler losses, boiler NOx and boiler SOx.

26.   (previously presented)   The method of claim 1, wherein the first process is sootblowing optimization, said first input of the first process is selected from the group consisting of: location, pressure and frequency of sootblowing operations; and an output of the first process is selected from the group consisting of: soot losses and cleanliness.

27.   (previously presented)   The method of claim 1, wherein the first process is SCR optimization, said first input of the first process is selected from the group consisting of: boiler NOx and NH_3; and an output of the first process is selected from the group consisting of: SCR losses and NOx.

28.   (previously presented)   The method of claim 1, wherein the first process is FGD optimization, said first input of the first process is selected from the group consisting of: boiler SOx and limestone; and an output of the first process is selected from the group consisting of: FGD losses and SOx.

29.   (previously presented)   The method of claim 1, wherein the first process is boiler performance optimization, said first input of the first process is selected from the group consisting of: soot losses, cleanliness, boiler losses, SCR losses and FGD losses; and an output of the first process is selected from the group consisting of: heat rate (HR) and MW.

30.   (previously presented)   The method of claim 1, wherein the method includes managing the first process using a first process management module, the first management module selected from the group consisting of: a module for optimizing combustion; a module for optimizing sootblowing; a module for optimizing boiler performance; a module for optimizing selective catalytic reduction (SCR); and a module for optimizing flue gas desulfurization (FGD).

31.   (previously presented)   The method of claim 1, wherein said processes of the process management modules include a third process having a plurality of inputs and an output that is said global output of the network, wherein the third process is profit optimization.

32.   (previously presented)   The method of claim 31, wherein an input of said third process is selected from the group consisting of: heat rate (HR), MW, NOx, NH_3, SO, limestone, emission credits, and fuel costs.

33.   (previously presented)   The computer program product of claim 18, wherein said first and second processes of the fossil fuel power plant are selected from the group consisting of the following processes: combustion optimization, sootblowing optimization, boiler performance optimization, selective catalytic reduction (SCR) optimization, flue gas desulfurization (FGD) optimization, and profit optimization.

34.   (previously presented)   The computer program product of claim 18, wherein the first process is combustion optimization, said first input of the first process is selected from the group consisting of: O_2 trim, over fire air (OFA), mill biases, SAD, and cleanliness; and an output of the first process is selected from the group consisting of: boiler losses, boiler NOx and boiler SOx.

35.   (previously presented)   The computer program product of claim 18, wherein the first process is sootblowing optimization, said first input of the first process is selected from the group consisting of: location, pressure and frequency of sootblowing operations; and an output of the first process is selected from the group consisting of: soot losses and cleanliness.

36.   (previously presented)   The computer program product of claim 18, wherein the first process is SCR optimization, said first input of the first process is selected from the group consisting of: boiler NOx and NH_3; and an output of the first process is selected from the group consisting of: SCR losses and NOx.

37.   (previously presented)   The computer program product of claim 18, wherein the first process is FGD optimization, said first input of the first process is selected from the group consisting of: boiler SOx and limestone; and an output of the first process is selected from the group consisting of: FGD losses and SOx.

38.   (previously presented)   The computer program product of claim 18, wherein the first process is boiler performance optimization, said first input of the first process is selected from the group consisting of: soot losses, cleanliness, boiler losses, SCR losses and FGD losses; and an output of the first process is selected from the group consisting of: heat rate (HR) and MW.

39.   (previously presented)   The computer program product of claim 18, wherein the first process is managed by a first process management module, wherein the first management module is selected from the group consisting of: a module for optimizing combustion; a module for optimizing sootblowing; a module for optimizing boiler performance; a module for optimizing selective catalytic reduction (SCR); and a module for optimizing flue gas desulfurization (FGD).

40.   (previously presented)   The computer program product of claim 18, wherein a third process having a plurality of inputs and an output that is said global output of the network, wherein the third process is profit optimization.

41.   (previously presented)   The computer program product of claim 40, wherein an input of said third process is selected from the group consisting of: heat rate (HR), MW, NOx, NH_3, SO, limestone, emission credits, and fuel costs.